

Simplified Database Tables

1. Members

- Description:** Stores information about library members.

Column Name	Data Type	Constraints	Description
MemberID	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each member.
FirstName	VARCHAR(50)	NOT NULL	Member's first name.
LastName	VARCHAR(50)	NOT NULL	Member's last name.
Email	VARCHAR(100)	UNIQUE, NOT NULL	Member's email address.
MembershipStartDate	DATE	NOT NULL	Date when membership started.

2. Books

- Description:** Contains basic details of all books in the library.

Column Name	Data Type	Constraints	Description
BookID	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each book.
Title	VARCHAR(255)	NOT NULL	Title of the book.
ISBN	VARCHAR(13)	UNIQUE, NOT NULL	International Standard Book Number.
Author	VARCHAR(100)		Author of the book.
CopiesAvailable	INT	NOT NULL	Copies currently available for loan.

3. Loans

- Description:** Tracks book loans to members.

Column Name	Data Type	Constraints	Description
LoanID	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each loan.
MemberID	INT	FOREIGN KEY (Members.MemberID), NOT NULL	Member who borrowed the book.
BookID	INT	FOREIGN KEY (Books.BookID), NOT NULL	Borrowed book.
LoanDate	DATE	NOT NULL	Date when the book was borrowed.
DueDate	DATE	NOT NULL	Date when the book is due for return.
ReturnDate	DATE		Actual return date (if returned).

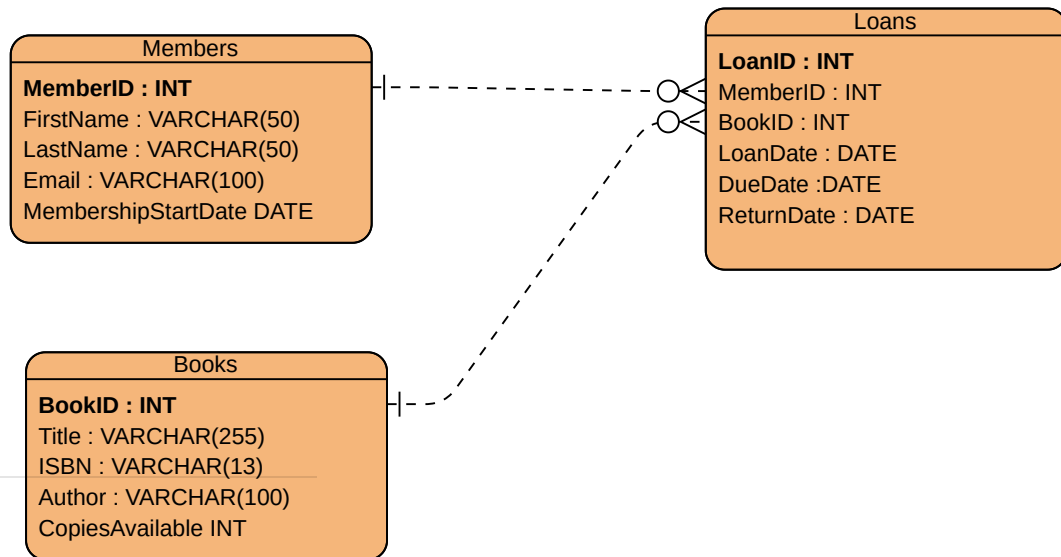
Relationships Between Tables

1. Members ↔ Loans

- Type:** One-to-Many
- Details:** A member can have many loans, but each loan is associated with one member.

2. Books ↔ Loans

- Type:** One-to-Many
- Details:** A book can be loaned multiple times, but each loan record is for one book.



How It Works

- Members Table:** This table keeps track of people who have a membership in the library.
- Books Table:** This table lists all the books available in the library.
- Loans Table:** Whenever a member borrows a book, a new entry is created in this table, linking the member and the book together.

Example Flow:

- A new member joins the library.** Their details are added to the **Members** table.
- A new book is added to the library.** It's added to the **Books** table.
- A member borrows a book.** A new record is created in the **Loans** table, showing which member borrowed which book and when it's due back.